The final countdown 3, 2, 1 … zero: Launching towards a university wide implementation of an ePortfolio system

Mr. Deepak Prasad, Mr. Pita Tuisawau, Mr. Javed Yusuf, Mr. Dhiraj Bhartu
The University of the South Pacific
prasad_de@usp.ac.fj
tuisawau_p@vanuatu.usp.ac.fj
yusuf_j@usp.ac.fj
bhartu_d@usp.ac.f

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INTRODUCTION

In today's digital age educators and governments around the globe are rightfully demanding for more reflective practice and social activity in education. Research has shown that, ePortfolios promote reflection (Batson & Chen 2008; Stefani, Mason & Pegler 2007) and social activity (Gerbic & Maher 2008; Zeichner & Wray 2001) in teaching and learning. ePortfolios are shared, reflected and provides a means for students to be mobile and lifelong learners and the types depend of their multiple purposes. In light of these possibilities, ePortfolios has gained major traction in high schools and universities and are becoming increasingly "viable institutional instructional technology to facilitate student learning" (Dordelly-Rosales 2010, p.12). ePortfolio is therefore a promising technology for any educational institution that aspires to meet the demands of educators and governments in today's very dynamic learning and teaching environment.

In its efforts to enhance learning and teaching at University of the South Pacific (USP), the Centre for Flexible and Distance Learning (CFDL) has been probing ePortfolios since 2007. In May 2008, an expert on e-portfolios, Sarah Lambert from the University of Wollongong, conducted a series of presentations on ePortfolios at the invitation of CFDL to USP faculty and management.

More specifically, plans for including a unit on e-portfolios in the new ICT generic course (UU100 to be rolled out in semester 2, 2010) called for some serious exploration of best ePortfolio solution/practices. In addition, this exploration exercise was seen as dovetailing with the University's efforts in developing its graduate profile and attributes as well as the newly setup USP alumni association. The current evaluation and testing exercise is one of the first phases of the ePortfolio rollout at USP. This phase started with an initial meeting of the ePortfolio Working Group on August 24, 2009.

This paper will be presented in four sections. The first provides the literature review that guided the study. The second will provide aim and objectives of the study and the third section will examine the evaluative approach and will present findings from the evaluative process. The final section of the paper will present the conclusion and recommendations of areas for further investigation.

EPORTFOLIOS: A REVIEW OF LITERATURE

There are numerous terms being used for ePortfolios (or e-portfolios). Other terms used are 'electronic' or 'digital' portfolios, 'webfolios' and even 'on-line personal development plans' or 'digital notebook' (Malita 2009). There are also numerous definitions of ePortfolios, but it is imperative to know and remember that an ePortfolio is best defined by its purpose and the purpose determines what ePortfolio tools to use. Barrett (2007) expressed that research and literature regarding ePortfolios in education is complicating because of the fact that there are

many purposes of ePortfolios such as, ePortfolios that center on learning, assessment, employment, marketing, and showcasing best work. Recently there seems to be a general consensus of three major types of ePortfolio. Maher and Gerbic (2009) identified three different types of portfolio: (1) a 'learning portfolio', where the focus is on student learning and includes students reflecting, evaluating and interacting with their peers and the teacher in giving and receiving feedback; (2) a 'showcase portfolio', where the purpose is to demonstrate competence and achievements, emphasis here is on showing, rather than evaluating, and on the product rather than the process of learning; and (3) 'assessment portfolio', where the focus is on external evaluation or judgment, this generally includes authentic assessment and involves the use of criteria and standards which are most widely recognized through graduate attributes and registration and certification standards. A more general purpose definition from an educational context, as expressed by Brown, Anderson, Simpson and Suddaby (2007), an ePortfolio is essentially an online collection of reflections and digital artifacts that students can use to demonstrate their development over time to various audiences.

An ePortfolio can be integrated within a learning management system or they can exist outside it. According to Lorenzo and Ittelson (2005), those who have adopted ePortfolio claim they are the biggest educational technology development since the adoption of learning management systems. There are four kinds of 'ePortfolio softwares' or 'ePortfolio tools' used for ePortfolio systems including, commercial software, proprietary systems, open source software, and open source common tools (Stefani, Mason & Pegler, 2007). Some of the commercial ones include PebblePad, Desire2Learn and the built-in ePortfolio module for learning management systems such as Blackboard. Proprietary systems are often designed by universities and examples include the University of Denver Portfolio Community (DUPC) system (https://portfolio.du.edu/pc/index) and University of Nebraska eportfolio system (http://portfolio.unomaha.edu). There are several open source systems available, some of the most common ones are Elgg, Mahara, Sakai, Mystuff, and OSPI. Tools such as Blogs, Wiki, eJournals and Dreamweaver are also used as ePortfolio systems. As with any software, numerous aspects need to be considered for a successful implementation. Sweat-Guy and Buzzetto-More (2007) asserted that there are a number of considerations that may influence the ePortfolio implementation process. They suggested that that each institution will need to carefully consider the role and purpose of ePortfolio within their own context before selecting ePortfolio software. As a guide for selecting the most appropriate ePortfolio software for any institution, Himpsl and Baumgartner (2009, p.16) have raised five critical questions:

1. Which kind of software best suits the intended portfolios?
2. Shall existing learning platforms or content management systems be used for portfolio work?
3. Or is it better to fall back on Web 2.0 applications?
4. Which aspects are more important: individual or institutional ones?
5. Which criteria can an institute of higher education utilize to determine which kind of portfolio software is science-based and forward-looking?

The above issues were taken into account and a decision was reached to explore open source software that could be integrated with Moodle, USP's learning management system. The subsequent section discusses the aims and objectives of the project.

PROJECT AIMS AND OBJECTIVES

The aim of the ePortfolio system research and evaluation was to research the available ePortfolio systems and recommend the system most suited for use in USP. The specific focus was on Open source. Integration of these tools with Moodle was an important criterion as well as how systems could integrate the USP's (Schools) matrix of graduate attributes and support and enhance learning for the USP learner in achieving their learning goals.

The specific objectives of the project were initially focused on evaluation:

1. Define a list of criteria to evaluate ePortfolios.
2. Use the criteria to collect evaluative data during the research stage.
3. Evaluate the data, reporting upon the successes and issues around different ePortfolio. systems

These were subsequently employed to achieve the following outcomes:
1. Select top three ePortfolio systems for installation, testing and evaluation.
2. Generate a report defining key issues and success factors.
3. Choose ePortfolio tool that best fits USP's context.

SELECTION PROCESS: COMPARITATIVE EVALUATION

An initial list of criteria to evaluate ePortfolios tools was synthesized and used by the ePortfolio Working Group to choose top three open source ePortfolio tools that was to be locally installed and further tested using the criteria in table 1. The initial evaluative criterion is reproduced below:

1. Integration with Moodle.
2. Easy Navigation (intuitive, example ajax instead of needing to play with html or CSS).
3. Archival/pack-up/download/transfer portfolio artifacts.
4. Able to devise Matrix (to facilitate communication of mastery of program outcomes).
5. Ability to assign and control access.
6. Active support community.
7. Ability to create template.

After initial evaluation period the ePortfolio Working Group met to discuss the finding and choose three top-choice ePortfolio tools: Mystuff, Elgg, and Mahara. These tools were to be installed and further evaluated using the criteria and explanations contained in table 1. As part of the ePortfolio evaluation process, 51 criterion evaluative matrix (see table 1) was developed by referring to 69 ePortfolio features available on EduTools website (http://eportfolio.edutools.info/glossary.jsp?pj=16). In 2006, Bruce Landon indentified and defined 69 ePortfolio features that were used by EduTools and ePAC International to review seven ePortfolio products.

Criteria	Notes
CONTENT MANAGEMENT/CUSTOMISE	
Annotate	User can add captions and notes on uploaded files.
Navigation & ease of use	Is it intuitive from students and staff perspective? (example ajax instead of needing to play with html or CSS).
Presentation Modify	Can you do presentations and can you modify these?
Artifacts	Are multiple file types supported?
Able to devise Matrix/Rubric	Is it possible to facilitate communication of mastery of learning/program outcomes?
Ability to assign and control access	How easy/hard is it to control who gets to view portfolios?
Installation	Ease of installation and maintenance.
TEMPLATES	
Create and modify templates	How easy is it to devise and modify templates for different views?
Reflection	Can reflections on artifacts be easily done?
Career/Resume	Is there an attractive publish to web option?
Blogging	Are there templates for Blogging?
Evaluation	Are there evaluation templates to support rubrics for scoring artifacts and or providing feedback?
Goal setting	Can users have different views for each goal?
PUBLISH/SHARE	
Access types (permissions)	The types of controls of access for users or groups.
Publish to Course	Publishing to a course enables content resources from a portfolio to be made available inside of a course management system where the user has permission to add files. Once published then the access control system of the course management system enables others to view or use the resource
Publish to Web	Publishing to a course enables content resources from a portfolio to be made available inside of a course management system where the user has permission to add files. Once published then the access control system of the course management system enables others to view or use the resource
Commenting	Commenting enables other users to leave comments for the author on portions of a shared or published portfolio
Archive/Download/Pack-up portfolio	Can it easily transfer portfolio artifacts between systems or installations
Share templates	Sharing templates allows other users to make use of created or modified templates. Depending on the system this sharing may be implemented as a shared template folder.
Group work	Group work feature can take many forms from a group portfolios, a wiki, peer reviews, peer circles, peer commenting, to specialized group presentation support.
Multiple portfolios	This feature involves the ability for a user to create multiple portfolios simultaneously within the portfolio system, either packaging components from the same collection of artifacts for different audiences or creating multiple versions of a portfolio.
Syndicate	Syndicate feature provides for weblog style publishing where new content is quickly made available to subscribed clients
External Notification	External notification enables users to contact individuals outside of the system from within the system
Internal Notification	Internal notification enables users to contact other users inside of the system.
Searching and browsing	Searching and browsing feature supports ways of finding information and making it available.

ORGANIZE	
Collection space	Collection space a work space for users to collect and storing artifacts (samples of work from various sources and files of all types), so that they can be used within the portfolios.
Categorization (taxonomy/tagging)	Can you tag individual files and folders?
Sequencing	Can you arrange views or files in certain orders?
Mapping	Mapping functionality enables the making of links between content resources that may be as simple as one-to-one alternatives to a more complex network of interconnecting links analogous to a map of roads linking destination resources.
Bookmarking	Bookmarking feature includes a variety of approaches from user bookmark list to elaborate navigation supports.
Selecting	Selecting functionality supports the user decision processes to pick out and thereby value some content resources over others.
Reuse/Remix	Reuse/Remix feature supports reusing and combining content from sources both inside and outside of the portfolio system or systems.
ANALYSIS TOOLS	
Tracking	Tracking feature includes systems for tracking and reporting page hits and other usage indicators such as where the hits are coming from depending on the system.
Reporting	Reporting functions can be used for describing the status of portfolios in the system.
Summarizing	Summarizing functionality enables a user to just deal with the more central or important commonalities of content resources.
Comparing	Comparing functionality makes it more possible for a user to notice differences and similarities between content resources. Sometimes this functionality takes the form of side by side visual comparisons in the same view.
Surveys (internal)	Are surveys possible?
Privacy and security	How secure are user's artifacts and information?
SUSTAINABILITY	
Support community and documentation	How active is the support community and is the documentation helpful?
System integration	Integration with Moodle
Migration and export	Migration and export supports are often in the form so support for standard formats such as those provided by IMS which can be expected to be available in the future. One aspect of this is exporting portfolios to another portfolio system so that the users can change systems.
User Higher education	Is the system widely used in Higher education?
Staffing requirements	Staffing requirements include the number of full time equivalent technical staff and help desk support staff that are recommended to support the size of the installation.
Orientation/Training/Help	Orientation/Training/Help refers to the system installation training of technical staff and the orientation of new users to the system as well as the context sensitive or other help subsystem.
Digital rights management	Are there provisions for managing copyright?
TECHNICAL REQUIRMENTS	
Authentication (login/password)	Ease of use.
Authorization (permissions)	Can the administrator suspend and delete student's accounts and change password?
Storage	Storage limitations can include limitations on the number of megabytes, the file types supported, potential for digital preservation.

Server and OS requirements	Server and OS requirements include the capacity of the server arrangement recommended to support the product at the expected load as well as which operating system is required.
Database requirements	Database requirements are the specifications for the database software needed for the portfolio system.
Other software requirements	Other software requirements include such requirements as specific browser software versions of IE, Netscape, Firefox, Opera, etc. or other software not included in the portfolio software system package.

Table 1. ePortfolio software evaluation criteria

After finalising the evaluative criteria the ePortfolio Working Group was divided into three teams: MyStuff, Mahara, and Elgg. Other members of the CFDL department were allotted into these teams to help with the installation, evaluation, and testing. The teams used the evaluation criteria (table 1) to review respective ePortfolio tools. Below is the summary of each group's findings.

Elgg Evaluation

Elgg (started in 2004) is an open source web publishing application combining the elements of weblogging, e-portfolios, and social networking.

The following are the team's findings:

- Elgg as just been released as version 1.0 on August 2009. In terms of this, the application is still pretty much new from the ground up. There are new schemas, APIs and interface and it is a significantly better release.
- The aim of Elgg however has, at least in the team's opinion, shifted somewhat and more focused towards being a social networking/community builder application at its core. This was always an objective in the past, but more so now.
- Most people using the Elgg are doing so to create new Ning (http://www.ning.com/) style portals rather than portfolio based systems.
- Elgg currently does not support the creation and use of templates. Templates are an important feature of an e-portfolio system.
- Elgg features are very rich for blogging and social networking.

Thus the following is the team's recommendation:

- Elgg has its strengths and weaknesses but may not be suited for an ePortfolio system that it integrated with Moodle at USP.
- However, Elgg can be considered as a blogging or social networking application at USP.

MyStuff Evaluation

MyStuff is the ePortfolio system used by the Open University and is a highly customized version of Mahara. Despite its many great features, the team could not install MyStuff into a local server at USP because it the high customization. MyStuff was disqualified because it did not meet the most basic of criteria: ease of installation.

Mahara Evaluation

Mahara is an innovative open source ePortfolio system originating in New Zealand around 2006. The team reported that Mahara ePortfolio tool:

- Offers feature-rich digital portfolios to students (caters for every file type).
- Enables reflection on uploaded artifacts.
- Integrates seamlessly with Moodle.
- Enables one to devise a skills Matrix (to facilitate communication of mastery of program outcomes).

- Enables students and staff to assign and control access (allows for students to display their portfolio content and achievements to relevant stakeholders such as prospective employers).
- Is easy to navigate (intuitive).
- Is easy to use to build e-portfolios (ajax instead of needing to play with html or CSS).
- Is building it's capabilities for Archival/pack-up/download/transfer portfolio artifacts.
- Is supported by a growing and active support community of developers.
- Is easy to install.
- Allows for the easy use and the copying of templates.
- Enables the building of different resumes.
- Supports personal blogs.
- Supports social networking (has features similar to facebook example, wall, messaging).

Some features that could be improved on in Mahara are:

- The addition of an html editor in the responsibility/jobs section of the resume feature (could allow for formatting and bullet points).
- Reflection could be made into a java script that appears when hovering over an artifact.
- Inclusion of reporting or survey tools.

CONCLUSIONS AND FUTURE DIRECTIONS

The ePortfolio Working Group selected Mahara after a thorough evaluation of the ePortfolio options because it is the best fit to the needs of USP and integrates well with USP's learning management system (Moodle). Furthermore, because it is open source, it has the capability to easily evolve with changing requirements and has a growing and active support community of developers to enable that. The selected system, Mahara, has been installed (http://www.eportfolio.usp.ac.fj/) and is being piloted on one 300-level undergraduate law course in semester 1, 2010.

Below are some recommendations of areas for further investigation:

- Ways to fit learning ePortfolios into USP teaching and learning strategies,
- How to utilize showcase ePortfolio,
- Ways to use assessment ePortfolio,
- Design themes to match USP (and faculties), and
- F2F/Online training and support.

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